Claims

1. A method of communicating blocks of information in a wireless sectorized frequency division multiplexing communications cell including a base station, a first sector and a second sector, the second sector being located adjacent said first sector, said blocks including blocks of a first size, blocks of a second size, and blocks of a third size, the method comprising:

allocating a first set of tones to a first communications channel in each of the first and second sectors;

allocating a second set of tones to a second communications channel in each of the first and second sectors;

allocating a third set of tones to a third communications channel in each of the first and second sectors;

using the first set of tones in the first sector during a first period of time to communicate information corresponding to blocks of the first size while having the tones in the first set of tones go unused in the second sector while said tones are being used to communicate information in the first sector;

using the second set of tones in the first and second sectors to communicate information corresponding to blocks of the second size during a second period of time, the step of using the second set of tones during the second period of time including:

transmitting information corresponding to blocks of the second size in both the first and second sectors at the same time using the same tones, the same tones being a first subset of tones in said second set of tones;

transmitting information corresponding to blocks of the second size in the first sector using a second subset of tones in said second set of tones while the tones in the second subset which are used to transmit information in the first sector go unused in the second sector; and

transmitting information corresponding to blocks of the second size in the second sector using a third subset of tones in said second set of tones while the tones in the third subset which are used to transmit information in the second sector go unused in the first sector; and

using the third set of tones in the first and second sectors to communicate information corresponding to blocks of the third size during a third period of time, the tones in said third set of tones being used to transmit information in the first and second sectors at the same time.

2. The method of claim 1, wherein the second subset of tones and the third subset of tones have the same number of tones.

3. The method of claim 1, wherein the information corresponding to blocks of the second size in the first sector includes at least one of a set of error correction bits and a set of error detection bits, at least one bit from said at least one set of bits being transmitted using a tone in the first subset of tones and at least another bit from said at least one set of bits being transmitted using a tone in the second subset of tones. , .

4. The method of claim 1, wherein said first, second and third periods of time are the same.

5. The method of claim 1, wherein the first size being smaller than the second size, and the second size being smaller than the third size.

6. The method of claim 5, wherein blocks of the first size are less than 10 bits in length and are used to communicate control information.

7. The method of claim 6, wherein blocks of the first size are a single bit in length.

8. The method of claim 6, wherein blocks of the third size are more than 20 bits in length.

9. The method of claim 8, wherein blocks of the third size are more than 100 bits in length and wherein each block includes error correction bits which were coded over a majority of the bits in block of the third size to which the error correction bits are included.

10. The method of claim 8, wherein said first, second and third periods of time are the same symbol transmission period of time.

11. The method of claim 1, wherein said first, second and third periods of time are the same symbol transmission period of time, the method further comprising:

allocating a fourth set of tones to said first communications channel in each of the first and second sectors;

allocating a fifth set of tones to said second communications channel in each of the first and second sectors;

allocating a sixth set of tones to said third communications channel in each of the first and second sectors;

using the fourth set of tones in the first sector during a fourth period of time to communicate information corresponding to blocks of the first size while having the tones in the fourth set of tones go unused in the second sector while said tones are being used to communicate information in the first sector;

using the fifth set of tones in the first and second sectors to communicate information corresponding to blocks of the second size during a fifth period of time, the step of using the fifth set of tones during the fifth period of time including:

transmitting information corresponding to blocks of the second size in both the first and second sectors at the same time using the same tones, the same tones being a first subset of tones in said fifth set of tones;

transmitting information corresponding to blocks of the second size in the first sector using a second subset of tones in said fifth set of tones while the tones in the second subset of tones in said fifth set of tones which are used to transmit information in the first sector go unused in the second sector; and

transmitting information corresponding to blocks of the second size in the second sector using a third subset of tones in said fifth set of tones while the tones in the third subset of tones in said fifth set of tones which are used to transmit information in the second sector go unused in the first sector; and

using the sixth set of tones in the first and second sectors to communicate information corresponding to blocks of the third size during a sixth period of time, the tones in said sixth set of tones being used to transmit information in the first and second sectors at the same time.

12. The method of claim 11, wherein at least one tone in said first and fourth sets of tones is different.

13. The method of claim 12, wherein at least one tone in said second and fifth sets of tones is different.

14. The method of claim 13, wherein at least one tone in said third and sixth sets of tones is different and wherein said fourth, fifth and sixth time periods are the same symbol time, said same symbol time following said first time period.

15. The method of claim 14, wherein allocating a first set of tones includes using a tone hopping sequence to determine the tones to be included in said first set of tones.

16. A method of communicating blocks of information in a wireless sectorized frequency division multiplexing communications cell including a base station, a first sector and a second sector, the second sector being located adjacent said first sector, said blocks including blocks of a first size, blocks of a second size, and blocks of a third size, the method comprising:

allocating a first set of tones, to be used to transmit signals in said first sector while going unused in said second sector, to a first communications channel;

allocating a second set of tones, to be used to transmit signals in each of the first and second sectors, to a second communications channel;

allocating a third set of tones, to be used to transmit signals in the first sector while going unused in said second sectors, to said second communications channel;

allocating a fourth set of tones, to be used to transmit tones in said first sector and second sector at the same time, to a third communications channel;

using the first set of tones in the first sector during a first period of time to communicate information corresponding to blocks of the first size while having the tones in the first set of tones go unused in the second sector;

using the second and third sets of tones to communicate information in the first sector corresponding to blocks of the second size, during a second period of time while said second set of tones is used to transmit information corresponding to blocks of the second size in the second sector and said third set of tones goes unused in said second sector; and

using the fourth set of tones in the first and second sectors to communicate information corresponding to blocks of the third size at the same time during a third period of time.

17. The method of claim 16, further comprising:

allocating a fifth set of tones, to be used to transmit signals in the second sector while going unused in said first sector, to said second communications channel; and

using the fifth set of tones to communicate information in the second sector corresponding to blocks of the second size, during said second period of time while said fifth set of tones goes unused in said first sector.

18. The method of claim 17, wherein the first, second and third periods of time are the same period of time.

19. A base station for controlling transmissions of coded blocks into a first sector and a second sector of a sectorized frequency division multiplexing communications cell, the second sector being located adjacent said first sector, said blocks including blocks of a first size, blocks of a second size, and blocks of a third size, the base station comprising:

tone allocation means for allocating tones for use in each of said first and second sectors, said means for allocating tones allocating a first set of tones to a first communications channel in each of the first and second sectors, allocating a second set of tones to a second communications channel in each of the first and second sectors, and allocating a third set of tones to a third communications channel in each of the first and second sectors; and

communications means for:

i) using the first set of tones in the first sector during a first period of time to communicate information corresponding to blocks of the first size while having the tones in the first set of tones go unused in the second sector while said tones are being used to communicate information in the first sector;

ii) using the second set of tones in the first and second sectors to communicate information corresponding to blocks of the second size during a second period of time, the step of using the second set of tones during the second period of time, using the second set of tones including:

transmitting information corresponding to blocks of the second size in both the first and second sectors at the same time using the same tones, the same tones being a first subset of tones in said second set of tones, for transmitting information corresponding to blocks of the second size in the first sector using a second subset of tones in said second set of tones while the tones in the second subset which are

used to transmit information in the first sector go unused in the second sector; and

transmitting information corresponding to blocks of the second size in the second sector using a third subset of tones in said second set of tones while the tones in the third subset which are used to transmit information in the second sector go unused in the first sector; and

iii) using the third set of tones in the first and second sectors to communicate information corresponding to blocks of the third size during a third period of time, the tones in said third set of tones being used to transmit information in the first and second sectors at the same time.

20. The base station of claim 19, wherein said communications means includes:

at least one communications routine for controlling data to be transmitted;

a transmitter for receiving data selected by said at least one communications route to be transmitted; and

a sectorized antenna for transmitting blocks of said first, second and third sizes produced by said transmitter.

22. The system of claim 19, wherein the second subset of tones and the third subset of tones have the same number of tones.

23. The system of claim 19, wherein the information corresponding to blocks of the second size in the first sector includes at least one of a set of error correction bits and a set of error detection bits, at least one bit from said at least one set of bits being transmitted using a tone in the first subset of tones and at least another bit from said at least one set of bits being transmitted using a tone in the second subset of tones. , .

24. The system of claim 19, wherein said first, second and third periods of time are the same.

25. The system of claim 19, wherein the first size is smaller than the second size, and the second size is smaller than the third size.

26. The system of claim 25, wherein blocks of the first size are less than 10 bits in length and are used to communicate control information.

27. The system of claim 25, wherein blocks of the first size are a single bit in length.

28. The system of claim 27, wherein blocks of the third size are more than 20 bits in length.

29. The system of claim 27, wherein blocks of the third size are more than 100 bits in length and wherein each block includes error correction bits which were coded over a majority of the bits in block of the third size to which the error correction bits are included.

30. The method of claim 8, wherein said first, second and third periods of time are the same symbol transmission period of time.